

contacting the combustion gas effluent with a liquid absorbent for sulfur dioxide in a sulfur dioxide absorption zone to selectively transfer sulfur dioxide from the combustion gas effluent to the absorbent and produce an exhaust gas from which sulfur dioxide has been substantially removed and a sulfur dioxide-rich absorbent;

stripping sulfur dioxide from the rich absorbent in a sulfur dioxide stripping zone to produce a lean absorbent and a sulfur dioxide-enriched stripper gas;

recycling the lean absorbent to the sulfur dioxide absorption zone for further selective absorption of sulfur dioxide from the combustion gas effluent; and

mixing the sulfur dioxide-enriched stripper gas with at least a portion of the acid gas feed stream and the remainder of the tail gas effluent to form the feed gas mixture introduced into the Claus catalytic reaction zone, the proportion of the tail gas effluent introduced into the Claus catalytic reaction zone as part of the feed gas mixture being sufficient to moderate the temperature within the Claus catalytic reaction zone.

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